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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,372	10/22/2003	Chandra Sekhar Namuduri	GP-303269	4956

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EXAMINER

WILLIAMS, THOMAS J

ART UNIT	PAPER NUMBER
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3683

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PM

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,372	<b>Applicant(s)</b> NAMUDURI ET AL.	
	<b>Examiner</b> Thomas J. Williams	<b>Art Unit</b> 3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 November 2004.  
2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-27 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/09/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 9, 2004 has been entered.
2. Acknowledgment is made in the receipt of the amendment and information disclosure statement filed November 9, 2004.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed disclosure fails to disclose the magnetorheological fluid as not being displaced by the support member during movement of the support member relative to the control structure and magnetorheological fluid. Furthermore, it is the opinion of the examiner that the fluid of the instant invention will in fact undergo displacement, such as during shearing of the MR fluid. The phrase displacement will incorporate any type of movement that the fluid would undergo, such as when experiencing shear stress due to movement of the support member

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adjacent the fluid. As understood in the art the viscosity of the MR fluid is altered to affect the yield stress and the amount of shear, this is supported in the instant application, see page 4 paragraph 16. Thus, as best understood by the examiner it appears that the fluid in the instant application does in fact undergo displacement.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6, 8-12, 14, 16-19, 21-23 and 26-27 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,351,515 to Yoshida.

Re-claims 1, 2, 4, 6, 8-10, 12, 14, 16-19, 21 and 22, Yoshida discloses an impact energy absorbing system comprising: a control structure 3 comprising a sleeve, a seal 14 and 15 at each end, a magnetorheological fluid 21, a coil 18; a primary impact surface fixed to a support member 1, the support member is in sliding engagement with the seals, wherein the magnetorheological fluid is not displaced by the support member (as best understood by the examiner, see above 35 USC 112 rejection); the sleeve is capable of being fixed to a vehicle chassis; the support is formed of a soft magnetic material, core 18; the fluid comprises ferromagnetic particles (see column 3 lines 17-20) in a carrier fluid; the system includes a permanent magnet 10. The process for absorbing energy from an impact of an object is anticipated by Yoshida. Yoshida utilizes sensors and sensor information for varying the magnetic field strength, thus altering the shear force of the sliding engagement.

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Re-claims 3, 11, 23, 26 and 27, a secondary impact surface is disposed with an annular recess of the support member comprising a spring 7/8 having one end fixedly attached to a transverse member (interpreted as end surface of piston 3) and an other end fixedly attached to the secondary impact surface (interpreted as the end caps of the support member), the transverse member is fixedly attached to the vehicle chassis.

7. Claims 1, 2, 4, 6, 8-10, 12, 14, 16-19, 21, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,427,813 to Carlson.

Re-claims 1, 2, 4, 6 and 8, Carlson discloses an impact energy absorbing system comprising: a sleeve 22 having a seal at each end, a magnetorheological fluid, a coil 40; a primary impact surface fixed to a support member 24 and 42, the support member is in sliding engagement with the seals, wherein the magnetorheological fluid essentially does not flow to effect the sliding engagement, or not is displaced by the support member (as best understood by the examiner, see above 35 USC 112 rejection, an increase in viscosity will result in fluid having essentially little flow, see column 4 lines 23-27, see also figure 4b); the sleeve is capable of being fixed to a vehicle chassis; the support is formed of a soft magnetic material (column 4 lines 27-29); the fluid comprises ferromagnetic particles (such as carbonyl iron, column 1 line 21) in a carrier fluid; the system includes a permanent magnet 25.

Re-claims 9, 10, 12, 14, 16 and 17, Carlson discloses an impact energy absorbing system comprising: a sleeve 22 having a seal at each end, a magnetorheological fluid, a permanent magnet 25; an impact surface fixed to a support member 24 and 42, the support member is in sliding engagement with the seals, wherein the magnetorheological fluid essentially does not flow to effect the sliding engagement or is not displaced by the support member (as best

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understood by the examiner, see above 35 USC 112 rejection, an increase in viscosity will result in fluid having essentially little flow, column 4 lines 23-27); the sleeve is capable of being fixed to a vehicle chassis; the support is formed of a soft magnetic material; the fluid comprises ferromagnetic particles in a carrier fluid; the system comprises an electromagnet 40.

Re-claims 18, 19, 21 and 22, Carlson discloses a process for absorbing energy from an impact of an object on an impact surface, the process comprising: detecting an impact with a sensor, sensors are mounted on an impact surface and a chassis (or stationary body), the impact surface is attached to a support member 24; the magnetic field can be varied in response to a signal provided by the sensor, energy from an impact is absorbed; the system can be used multiple times, wherein the magnetorheological fluid essentially does not flow to effect the sliding engagement or is not displaced by the support member (as best understood by the examiner, see above 35 USC 112 rejection, an increase in viscosity will result in fluid having essentially little flow).

Re-claim 24, Carlson discloses in figure 4b a rotating damper, comprising: a primary impact surface connected to a shaft, a support member (part of the shaft) is slidably engaged with a housing; a plurality of plates (such as elements 25 and 26, these are plate like structures) are disposed in the housing, the plates are parallel to one another and define a space there-between; a magnetorheological fluid is disposed between the plates; an electromagnet and permanent magnet are in proximity to the fluid.

8. Claims 1, 2, 4, 6, 18, 19, 21, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,942,947 to Shtarkman.

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Re-claims 1, 2, 4 and 6, Shtarkman discloses an impact energy absorbing system comprising: a sleeve (elements 26-29) having a seal 86/87 at each end, a magnetorheological fluid, a coil 30 or 32; a primary impact surface 58 fixed to a support member 56, the support member is in sliding engagement with the seals, wherein the magnetorheological is not displaced by the support member to effect the sliding engagement; the sleeve is fixed to a vehicle chassis; the support is formed of a soft magnetic material; the fluid comprises ferromagnetic particles in a carrier fluid.

Re-claims 18, 19, 21 and 22, Shtarkman discloses a process for absorbing energy from an impact of an object on an impact surface, the process comprising: detecting an impact with a sensor 24, sensors are mounted on an impact surface and a chassis (or stationary body), the impact surface is attached to a support member; the magnetic field can be varied in response to a signal provided by the sensor, energy from an impact is absorbed; the system can be used multiple times, wherein the magnetorheological fluid is not displaced by the support member.

Re-claim 24, Shtarkman discloses an impact energy absorber device, comprising: a primary impact surface affixed to a shaft 58, a support member 56 slidably engages a housing (elements 26-29); a plurality of plates (37-39 and extensions of 27 and 28) are disposed in the housing, each plate is parallel to an adjacent plate, the plates are alternately attached to the support and a frame member of the housing; a magnetorheological fluid is disposed between the plates, an electromagnet is in proximity to the fluid.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 5, 7, 13, 15, 20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,427,813 to Carlson in view of US 5,525,249 to Kordonsky et al.

Re-claims 5, 7, 13, 15, 20 and 25, Carlson teaches a magnetorheological fluid comprising carbonyl iron. However, Carlson is silent regarding the volume percent of the iron and the contents of the liquid carrier. Kordonsky et al. teaches a magnetorheological fluid comprising carbonyl iron within a 5 to 75 percent volume of the fluid and the use of silicone dioxide as a stabilizer. Kordonsky et al. teaches that this combination provides for a stable magnetorheological fluid, see column 1 lines 65-66. It would have been obvious to one of ordinary skill in the art as a matter of design choice to have utilized the fluid taught by Kordonsky et al. in the device of Carlson, thus providing the impact energy absorbing system with a stable magnetorheological fluid.

12. Claims 5, 20 and 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shtarkman in view of Kordonsky et al.



Re-claims 5, 20 and 25, Shtarkman is silent regarding the specific makeup of the magnetorheological fluid. Kordonsky et al. teaches a magnetorheological fluid having iron particles with silicone dioxide as a stabilizer, thus providing a stable magnetorheological fluid, see column 1 lines 65-66. It would have been obvious to one of ordinary skill in the art as a matter of design choice to have utilized the fluid taught by Kordonsky et al. in the device of Shtarkman, thus providing the impact energy absorbing system with a stable magnetorheological fluid.

13. Claims 5, 7, 13, 15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Kordonsky.

Re-claims 5, 7, 13, 15, and 20, Yoshida teaches an energy absorber that utilizes a magnetorheological fluid. However, Yoshida is silent regarding the specifics of the fluid or the volume percent of any iron and other contents of the liquid carrier. Kordonsky et al. teaches a magnetorheological fluid comprising carbonyl iron within a 5 to 75 percent volume of the fluid and the use of silicone dioxide as a stabilizer. Kordonsky et al. teaches that this combination provides for a stable magnetorheological fluid, see column 1 lines 65-66. It would have been obvious to one of ordinary skill in the art as a matter of design choice to have utilized the fluid taught by Kordonsky et al. in the device of Yoshida, thus providing the impact energy absorbing system with a stable magnetorheological fluid

#### ***Response to Arguments***

14. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

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***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hayashi et al. and Funaki et al. each teach a vibration damping apparatus comprising an MR or ER fluid.

16. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Bucci, can be reached at (703) 308-3668. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

TJW

January 4, 2005

THOMAS WILLIAMS  
PATENT EXAMINER

*Thomas Williams*

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1/04/05